

# National Board of Examinations

**Question Paper Name :** DNB Nuclear Medicine Paper1  
**Subject Name :** DNB Nuclear Medicine Paper1  
**Duration :** 180  
**Total Marks :** 100  
**Display Marks:** No

**Maximum Instruction Time :** 0

**Question Number : 1 Question Id : 32718737135 Consider As Subjective : Yes**

**Please write your answers in the answer booklet within the allotted pages as follows:-**

Question Number	Answer to be attempted within	Question Number	Answer to be attempted within
Q. 1	Page 1-5	Q. 6	Page 26-30
Q. 2	Page 6-10	Q. 7	Page 31-35
Q. 3	Page 11-15	Q. 8	Page 36-40
Q. 4	Page 16-20	Q. 9	Page 41-45
Q. 5	Page 21-25	Q. 10	Page 46-50

1. a) Describe physical half life, biological half life and effective half life and their clinical implications. [5]  
b) Segmental anatomy of liver with diagram. [5]

**Question Number : 2 Question Id : 32718737136 Consider As Subjective : Yes**

- a) Define an error in counting statistics. [2]  
b) Enumerate the sources of error in a counting system. [3]  
c) What are different types of errors encountered in counting radioactivity. Define them with examples. [5]

**Question Number : 3 Question Id : 32718737137 Consider As Subjective : Yes**

- a) Bremsstrahlung. [4]  
b) Neutron Activation Analysis. [6]

**Question Number : 4 Question Id : 32718737138 Consider As Subjective : Yes**

What is radiation detector? Enumerate different types of detectors used in Nuclear medicine. Explain any one of them in detail with working principle, design and clinical applications. [2+3+5]

**Question Number : 5 Question Id : 32718737139 Consider As Subjective : Yes**

- a) Decay scheme of I-131. [5]
- b) Isomeric Transition. [5]

**Question Number : 6 Question Id : 32718737140 Consider As Subjective : Yes**

- a) Describe various quality control parameters for well counter. [5]
- b) Chi-square test. [5]

**Question Number : 7 Question Id : 32718737141 Consider As Subjective : Yes**

- a) What are the core elements of a clinical trial? [5]
- b) Enumerate and define different types of blinding in a clinical trial. [5]

**Question Number : 8 Question Id : 32718737142 Consider As Subjective : Yes**

- a) GFR and various methods of its calculation. [5]
- b) Describe MIRD in detail. [5]

**Question Number : 9 Question Id : 32718737143 Consider As Subjective : Yes**

- a) Statistical parametric mapping (SPM). [5]
- b) Transient and secular equilibrium. [5]

**Question Number : 10 Question Id : 32718737144 Consider As Subjective : Yes**

- a) Pair production and photo disintegration. [4]
- b) Iterative reconstruction and its advantages over filtered back projection. [6]